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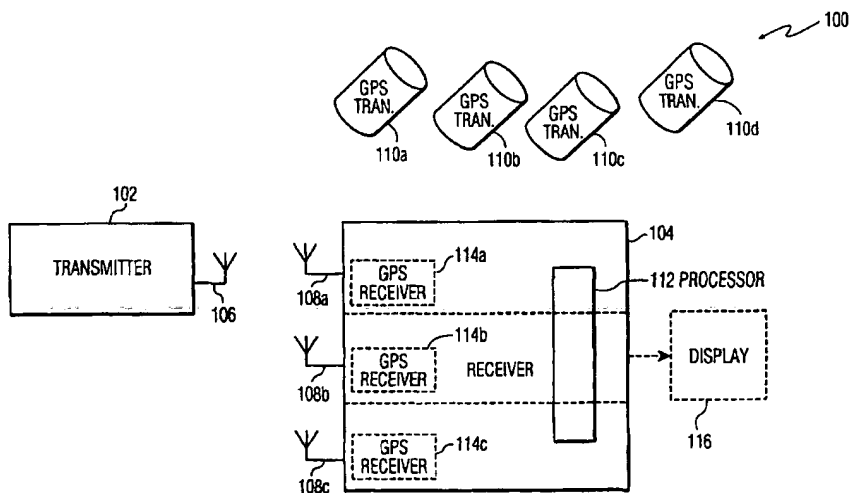
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(54) Title: USING MULTIPLE RECEIVE ANTENNAS TO DETERMINE THE LOCATION OF A TRANSMITTER WITH RESPECT TO A RECEIVER IN ULTRA WIDEBAND SYSTEMS



(57) Abstract: An apparatus, system, method, and computer program product for determining a location of at least an image of a transmitter transmitting a signal is disclosed. The location of at least the image of the transmitter is determined by receiving a signal transmitted by the transmitter at at least three receiver antennas separated by known distances. Differences in time are then determined between receipt of the signal at one of the receiver antennas and at least two other receiver antennas. The known distances and the determined differences in receipt times are then processed to determine the location of the transmitter.

WO 2004/059338 A3



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B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 G01S H04Q				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
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C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2002/145564 A1 (ANDERSON ROBERT J ET AL) 10 October 2002 (2002-10-10) abstract paragraphs '0049! - '0053! paragraph '0185! paragraph '0205! paragraphs '0209! - '0219! paragraphs '0302!, '0303! ----- -/--	1-3, 8-12, 17-21, 23-26, 28-30, 32		
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* Special categories of cited documents: <table border="0"> <tr> <td> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed </td> <td> *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art *G* document member of the same patent family </td> </tr> </table>			*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art *G* document member of the same patent family
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 5 446 701 A (VAN DE LOO DALE P ET AL) 29 August 1995 (1995-08-29)</p> <p>abstract figure 6b column 3, line 41 - column 4, line 22 column 8, line 37 - column 9, line 16 -----</p>	<p>1,3,5,6, 10,12, 14,15, 19,21, 24,26,29</p>
X	<p>US 6 054 950 A (FONTANA ROBERT J) 25 April 2000 (2000-04-25)</p> <p>abstract column 3, line 6 - line 63 column 7, line 17 - line 34 -----</p>	<p>1,4,8, 10,13, 17,19, 22-24, 27-29, 31,32</p>
X	<p>US 6 300 904 B1 (DVORAK MARK D ET AL) 9 October 2001 (2001-10-09)</p> <p>abstract column 1, line 13 - column 2, line 67 -----</p>	<p>1,7,10, 16,19, 24,29</p>

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